REMARKS

Claim Objections

Claims 1-36 are now pending in this application. Claims 16-29 have been withdrawn from consideration. Claims 1-15 and 30-36 are presented for examination.

The term "preferably" has been deleted in the claims. Thus, the rejection based on indefiniteness pointed out by the Examiner under 35 USC 112, second paragraph, has been eliminated.

The objection to claim 9 as to run-on words and numbers is not understood. The applicant is willing to make any necessary corrections if they are clearly identified by the Examiner.

Double Patenting

Claims 1-15 are provisionally rejected on the ground of non-statutory double patenting over claims 45-54 of copending Application No. 10/524,014. Applicant again traverses the double patenting rejection. This is a provisional double patenting rejection since the conflicting claims have not yet been patented. A timely filed terminal disclaimer may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided that the conflicting application or patent is commonly owned. The applicant requests that any action in this regard be held in abeyance until after allowable subject matter has been identified. Furthermore, it is to be noted that claim 45 is an independent claim and that claims 46-54 are dependent on this claim.

Also, as noted above, the Examiner has rejected claims 1-15 for double patenting over claims 45-54 of copending Application No 10/524,014. We note that claim 45 is an independent claim and that claims 46-54 are dependent on said claim.

Claim 45 recites a tomato product prepared by using a process comprising:

- separating by filtration tomato serum from water insoluble solids present in either tomato juice or in tomato passatas, using a separation solid-liquid apparatus at temperatures of from 5°C to 25°C, wherein said tomato passatas are maintained under stirring with a stirrer at an angular speed from 1 rpm to 20 rpm during filtration, the stirrer being of a shape to convey the tomato juice or tomato passatas toward the central axis of the apparatus, and
- recovering said tomato serum and/or said water insoluble solids.

It is submitted that concentrates are not used as a starting material, nor is the addition of water in the solid-liquid separator disclosed. The same can be said for dependent claims 46-54.

Besides, in the process of the present invention, there is no step of recovery of tomato serum. Therefore, the process of claims 45-54 is not the same as the process of present claim 1.

In view of the above comments, the Applicant asserts that the double patenting rejection has no basis in the copending Application No 10/524,014 (5059-0102PUS1). Therefore, we believe that the rejection should be withdrawn.

Restriction Requirement

With regard to the restriction/election requirement, and the traversal thereof, applicant notes the Examiner's position that the limitations of the claims overlap and form a single inventive concept. However, the Examiner then goes on to state that the process is directed to a different inventive concept. It is not consistent to take such a position with regard to a withdrawn claim. Hence, reconsideration on the part of the Examiner is requested. Claims 1-36 should be examined in the same patent application

Claims Rejections under 35 USC § 103

Before commenting on the Examiner's rejection, we wish to highlight the gist of the present invention.

In the art it is known to obtain on an industrial scale tomato concentrates by using strong concentration processes, in particular concentration by evaporation, carried out by juice heating (page 1, P3-P4 of the Spec.).

Other concentration methods are not practically used on an industrial scale, owing to relevant drawbacks, as reported below.

For instance, by using reverse osmosis membranes for preparing tomato concentrates one cannot operate at room temperature, as is usual with this technique, but a temperature as high as about 70°C must be used. Additionally, in order to obtain a satisfactory concentration yield, the reverse osmosis membranes must be periodically cleaned and regenerated. For the cleaning and

regeneration of said membranes, surfactants are generally used. Therefore, the added compounds must be removed before starting a new concentration step (page 1, P5), in order not to contaminate the concentrate.

The cryoconcentration technique is not applicable for concentrating tomato juice on an industrial scale, since the solids content of the juice can be separated together with ice (page 1, P5) during cryoconcentration.

However, the process of concentration by evaporation also shows drawbacks as to the quality of the obtained tomato concentrates. In fact, a tomato concentrate obtained by said process with respect to tomato juice shows the following defects:

- worsened organoleptic properties: the tomato concentrates have a caramel taste and a typical cooking ("cotto") aroma, due to the formation, during the heating step, of decomposition products, for example, pyrrolidone carboxylic acid (see the paragraph bridging pages 1 and 2 of the Spec.).
- worsened nutritional properties, due to the degradation of the carotenoids present in tomatoes, and in particular of lycopene (page 2, P2).
- A color that is different from that of ripened tomatoes, since in tomato concentrates there are present degradation products such as dark yellow pigments derived from the Maillard reaction, degradation products from carotenoids and black specks (page 2, P3), which alter the starting color of tomatoes.

Tomato concentrates have the advantage of an improved saucing power, i.e., the capability of the tomato product to stick to foods, for example to pasta. However, owing to the above

mentioned taste problems, the concentrates as such cannot be used and must be diluted beforehand. Therefore, the advantage of an improved saucing power is practically of no use (ref. the paragraph bridging pages 2-3 of the Spec.).

The need was therefore felt of a process for obtaining tomato products, starting from tomato concentrates, having the following properties:

- Dry residue higher than 15% (page 5, P4 of the Spec.)
- improved palatability, agreeable taste and improved saucing power (page 3, P3, 2nd sentence).
- Optionally, preserving the same solids content, the same ratio of water-soluble solids/water-insoluble solids of the commercial products (page 3, P3, 1st sentence).

The solution is according to claim 1: a process wherein a tomato concentrate in a first step is mixed with water and in a second step the thus obtained mixture is submitted to liquid separation, while maintaining the mass to be filtered under stirring.

Optionally, a third step is carried out in order to obtain a tomato concentrate with the required value of dry content (by adding water, as requested), and/or the requested insoluble solids/soluble solids ratio (by adding, as needed, serum, tomato juice and/or passata). See page 3, P2 of the Spec.

We believe that the process is surprising and unexpected over the prior art, that does not disclose or suggest, as will be shown hereinbelow, any method that could solve the gist of the present invention.

The Examiner has rejected claims 1-15 for obviousness based on the following prior art combinations:

- De La Cuadra in view of Okada in view of applicant's specification (US 2008020606438 PG publication), Chiang et al. (5,436,022), and two references from Google.com.

or

- Succar ((WO 03/024243) in view of Okada in view of applicant's specification (US 2008/020606438 PG publication), Chiang et al. (5,436,022), and two references from Google.com

As to the first combination we note the following:

I. De La Cuadra

In the prior art background of this reference the following is stated. The hot- and cold-break process involves breaking the tomatoes (i.e., reducing in size, e.g. by cutting) and applying heat, either prior to, during, or after the breaking process. See P3, 1st sentence. Hot break products have the advantage that enzymes (e.g. pectin-degrading enzymes) are inactivated quickly, thus giving a product that has a good (thick) consistency. However, the heating step is detrimental to flavors. (P3, 3rd sentence).

It is also stated that tomato paste is (mainly) an intermediate product in tomato processing. Tomato paste is produced by finely comminuting a hot- or cold-break product, which is concentrated, usually by evaporation. The concentration is usually such that the tomato paste is about 24-31° Brix. However, the evaporation by heating has an influence on the product, e.g., on

the texture and flavor profile. Although the product is highly concentrated and thus has a strong tomato flavor, it is a flavor with heat damage, since some volatiles have been lost, and a `cooked` flavor may be present. Also, the flavor in tomato paste is perceived as too strong to be consumed without dilution for most applications. (P4)

De la Cuadra has found that a tomato product, see P9, having a ratio of soluble tomato solids to insoluble tomato solids of between about 1.0:0.5 and about 1.0:20 can have the consistency of conventional concentrated tomato paste (or even thicker), but without the concentrated flavor.

The process for obtaining said products is reported at P11-P14 of the reference and comprises the following steps:

- hot- or cold breaking tomatoes,
- separating the resulting product into:
    - a product (a) rich in soluble tomato solids, and
    - a product (b) rich in insoluble tomato solids,
- subjecting product (a) to a concentration step such that it is at least about 10° Brix (preferably at least about 20° Brix, most preferred at least about 30° Brix),
- recombine product (a) and product (b) to a product (c) in such ratios that the resulting product has a ratio of soluble tomato solids: insoluble tomato solids of between about 1.0:0.5 and about 1.0:20.

At P34 it is stated that the product resulting from hot breaking tomatoes was separated into two streams, i.e., a "thin stream" and a "thick" stream.

At P35, under Examples 1-5 of the reference, it is stated that the splitting into a thick stream, with mainly the insoluble tomato solids, and a thin stream, with mainly the soluble tomato solids, was made by mechanical separation. Subsequently, the thin stream (approx. 4-6° Brix) was concentrated using an evaporator, as known in tomato processing, to yield approx. 30° Brix.

Comments on De La Cuadra

It is believed that the reference does not teach one skilled in the art how to solve the gist of the present invention.

The Examiner should note that in De La Cuadra the drawback of the heat-damaged tomato flavor of tomato pastes is avoided starting from tomatoes.

In the process described in said reference, there is not even a pallid hint of the process of the present invention on the following grounds:

- Tomato concentrates are not used, or suggested, as a starting material. Further, the reference teaches away from using tomato concentrates, e.g. tomato pastes, owing to their "flavor with heat damage" (ref. P4, 3rd sentence).
- In the process of the present invention there is no hot- or cold-breaking step.
- In the process of the present invention there is no recombination step of previously separated fractions.

In conclusion, the Applicant submits that those skilled in the art would not find in De La Cuadra any suggestion on how to improve the organoleptic and nutritional properties of tomato concentrates.

Okada

The Okada reference discloses a method for separating from the liquid, in a liquid suspension containing solids, the suspended solids in a concentrated dewatered state (col. 1, lines 7-11).

The apparatus of Okada is shown in Fig. 1 and Fig. 5 of the reference. The suspension is fed through inlet 8 and the final, dewatered suspension removed through outlet 9. Concentration is effected by two filtration trains 10a and 10b, located in chamber 1, each formed of a plurality of filtration elements 11. Each filter element 11 is formed of an alternate arrangement on a shaft 15, plates 12 and annular spacers 14.

Plates 12 possess a plurality of filtrate discharge orifices 13. The filtrate discharge orifices 13 in each of plates 12 are formed to register with one another when the plates are arranged face to face and fastened in shaft 15. As a result, the filtrate discharge orifices in the circular plates form straight continuous paths extending through the multiplicity of intervening

spaces 16 parallel to the shaft (col. 4, lines 32-38). Fig. 5 shows in particular how water is spilled from chamber 1 through holes 17', and into collector boxes 18.

At col. 7, lines 65-67 it is stated that any substance can effectively be dehydrated by the apparatus of Okada insofar as it is in the form of a slurry comprising solids suspended in a liquid.

De La Cuadra+Okada

The above combination suggests to those skilled the art to use the process of De La Cuadra, whenever a concentration step is carried out, with the equipment and method of Okada.

We observe that in the process of the reference the only concentration step is the concentration of product (a) rich in water soluble solids, obtained by separation from the hot or cold-broken tomatoes.

Therefore, the above combination teaches the same as De La Cuadra alone, as Okada does not seem to add anything more to the teachings of the latter reference relating to a process for obtaining tomato products.

With reference to this prior art combination, it is further noted that in the examples, see P35, De La Cuadra concentrates fraction (a) by means of an evaporator. Therefore, a person skilled in the art in view of this teaching of De La Cuadra is not motivated to use the apparatus of Okada for the concentration step of fraction (a).

In conclusion, it is not seen how the above combination could motivate the skilled artisan to use the process of present claim 1, in order to solve the technical problem of the present invention.

Therefore, claim 1 is not obvious over the above combination of references. The remaining claims are also nonobvious since they depend from a nonobvious claim.

US2008/020606438

It seems that the Examiner has cited the publication of the present invention as prior art relevant for obviousness.

The applicant questions on which basis that the Examiner has concluded that a published patent application can be considered as prior art in an issue relating to the same patent application.

Since said publication is not a prior art document, we submit that no combination is permissible with De La Cuadra and/or Okada.

Chiang

The Chiang reference discloses a tomato-based product, such as tomato puree, tomato paste, tomato sauce, and the like, having improved flavor characteristics. (Col. 1, lines 5-8). Chiang relates

more in particular to a modified hot break process for the production of tomato products having sweeter, more fruity and less sour flavor characteristics than products produced by conventional hot break procedures. (Col. 1, lines 8-12).

The process uses as a starting material tomatoes and comprises, in the order of the following steps:

- A blanching step, performed at a temperature of 85°C, typically between 88° to 99°C for about two minutes in order to inactivate the pectic enzymes located near the surface of the tomato (Col. 2, lines 23-28).
- Rinsing of tomatoes in cold water to reduce the surface temperature below about 43°C (Col. 2, lines 33-35).
- Maceration of tomatoes in the presence of added alkali and a food grade alcohol (Col. 2, lines 35-37).
- Acidification of the tomato slurry resulting from maceration to a pH from 4.2 to 4.5 by addition of an acid (Col. 2, lines 59-63.
- Processing of the slurry by using conventional hot break procedures for the production of tomato based products (Col. 2, lines 63-65).
- Passing the hot slurry through a pulper and a finisher to remove seeds and skin and reduce the slurry to a desired particle size. (Col. 4, lines 64-66).
- Concentrating the slurry by any suitable method (Col. 4, lines 67-68).

Comments on Chiang

Chiang uses as starting materials tomatoes and concentrates the obtained slurry by means of any suitable evaporation equipment. Chiang suggests removing water from the tomato products since the final step of the process of Chiang is concentration by evaporation. In conclusion, this reference does not teach or suggest to one skilled in the art a process for obtaining tomato concentrates with improved organoleptic and nutritional properties starting from commercial tomato concentrates.

De La Cuadra+Okada+Chiang

For the above combination, the same comments made for De La Cuadra + Okada can be repeated. As a matter of fact, both De La Cuadra and Chiang, as shown above, start from tomatoes and suggest carrying out the concentration step of their processes by evaporation. Therefore, the above prior art combination of De La Cuadra+Okada does not motivate one skilled in the art to use the apparatus of Okada.

It is therefore submitted that claim 1 is nonobvious over the prior art combinations set forth by the Examiner. The other claims are also nonobvious since they depend from a nonobvious claim.

The combination De La Cuadra+Okada+Chiang+pictures of amazon.com of food mills

We do not see how the mill represented in said pictures, in combination with the above stated references, could suggest or lead one skilled in the art to the process of the present invention.

The Examiner's statement of obviousness in the Office Action.

The Examiner has stated (see page 5, 1st paragraph, middle) that it would have been within the skill of the ordinary worker to add water to a thick mixture so that it can be easily separated.

We submit that nowhere, in the prior art cited by the Examiner, is the separation of a "thick" mixture described or suggested. Neither is a motivation given, in the cited prior art, for subjecting tomato concentrates to a solid-liquid separation.

Therefore, we do not see how one skilled in the art, by reading the cited references, would instead be motivated, as the Examiner seems to hold, to think of tomato concentrates and to a process for their treatment.

The prior art on which the Examiner has based the obviousness rejection is De La Cuadra and Succar, commented later on hereinbelow. De La Cuadra, as shown above, illustrates the separation of the product resulting from hot breaking tomatoes, see P34, into a "thin stream" and a "thick" stream.

However, De La Cuadra does not mention, or suggest, any solid-liquid separation process to be carried out on said "thick" stream.

In conclusion, in view of the prior art teachings, it is unlikely in our view to see how one skilled in the art would think of separation processes for "thick" mixtures and in the use of water in order to separate said "thick" mixtures.

It is well known by those skilled in the art that for obviousness the prior art must clearly indicate the problem to be solved and the solution.

Therefore, the question is whether the prior art "would" suggest said solution, otherwise all the prior art could be pertinent only "ex post facto", with the knowledge of the solution indicated in the present invention.

In view of the above comments, we submit that claim 1 is nonobvious also with respect to the Examiner's statements on obviousness.

Since claim 1 is nonobvious, the claims dependent thereon are also nonobvious.

As to the second combination of art, Succar in view of Okada in view of applicant's specification, Chiang and two references from Google.com, we respond as follows:

Succar

In the background of the reference, it is stated that tomatoes can be directly processed as an entire or unfractionated tomato stream. The unfractionated tomato stream becomes increasingly concentrated by evaporating water (page 1, lines 28-31).

The disadvantage is that the paste product becomes more viscous and more resistant to flow, and is difficult to manipulate. Portions of the paste can be "burned" onto evaporator surfaces and stick to them. The burned or overheated tomato paste results in diminished tomato paste quality, e.g. reduced color, flavor and nutrients (see the paragraph bridging pages 1-2). Another disadvantage is the need of additional cleaning to remove the burned paste. Additionally, the increasingly viscous paste requires more powerful evaporators (e.g. turbine pumps) to handle the viscous pastes (page 2, lines 3-9).

The technical problem of Succar was to find a system and a method for producing a tomato paste having improved viscosity, color, nutrients and flavor in a more economical manner (page 2, P4).

In the process disclosed by Succar, the juice stream is separated or fractionated into two portions, a serum portion (lower viscosity) and a cake portion (thicker). After separation, the serum portion is concentrated. The cake portion, if desired, can be concentrated. The cake portion includes the majority of insoluble solids. As a result, the serum portion can be concentrated more easily with

an evaporator for enhanced appearance and taste (page 3, lines 15-16.) With the Succar process, the degradation of the tomato juice stream resulting from "burning on" of cake components onto evaporator surfaces can be reduced or eliminated (page 3, lines 15-16).

1. Comments on Succar

The same comments made for De La Cuadra can be repeated. We submit that the process of Succar is similar to that of De La Cuadra in that in both references a separation is made into a fraction rich with insoluble solids (cake portion in Succar) and a fraction rich in soluble solids (serum portion in Succar), the latter being then concentrated and combined with the cake portion.

In conclusion, Succar also does not teach or suggest to one skilled on the art how to obtain, starting from commercial tomato concentrates, tomato concentrates having the improved properties indicated above.

For the combination with Okada, Chiang and the pictures from Amazon.com the same comments made for the first prior art combination can be repeated. See above.

Comments on obviousness with respect to some of the dependent claims

Claim 5

Claim 5 recites that in step I of claim 1, in the alternative or in association with water, a tomato juice or a passata can be used. The Examiner has stated that it would have been obvious

to enrich the concentrate with known food ingredients. However, the Examiner has not supported this position in any way.

Claims 6 and 7

As to claims 6 and 7, the Examiner has stated that it would have been obvious to add particular amounts of water to the composition of the combined references. However, it is noted that also in this case the Examiner has not indicated any prior art document in support of this statement.

Thus, it is respectfully submitted that the references fail to disclose, teach or suggest the invention as claimed herein and that, therefore, the claims set forth an invention that is novel and nonobvious over the cited prior art, whether considered alone or in combination. Withdrawal of the rejections and favorable action on the claims is requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Raymond C. Stewart Reg. No. 21,066 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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